Smoky Mountain Astronomical Society

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S.C.R.A.P.S.

Society's ChRonological Astronomical PaperS

President's Message by Bob Arr

At our recent officer changeover meeting, each of the outgoing officers got to brief their replacements in detail, with procedures and notes they accumulated during their tenure. In my humble opinion, it's the civilized way to do it.

We also reviewed the club's progress during the past year, and our goals for 2003. The new liability insurance policy opens the door to publicizing our star parties, and, we believe, growth in membership. We have the infrastructure to support it, and I believe that exciting times are just ahead.

Several of last year's appointees have been asked to continue their jobs, and I'm happy to report that Mike Littleton (SCRAPS editor), Mike Fleenor (webmaster), Ron Dinkins (Observe Chair), Steve Rothschild (Librarian), Richard Hobart (official greeter) and Wayne Thompson (How-to book organizer) have agreed. Tom Rimmell is our new Star Party Organizer and publicist, and Lee Erickson our new Ombudsman.

The Telescopes for Kids project is poised to deliver its first two scopes in March. A new project, the Dark Sky Chair, has been initiated, headed by Ed Gorney. It will work with the International Dark Sky Association (IDA) to help publicize efficient outdoor lighting, aimed at the long range reduction of urban light pollution.

The March meeting will be devoted to...observing! Instead of a main presentation, we will have a series of shorter topics dealing with the Spring Night Sky and some practical advice on observing it.

The Raving

Once upon a midnight dreary, while I pondered, weak and weary,
Over many a quaint and curious URL...
While I nodded, nearly napping, suddenly there came a tapping,
As of some one gently rapping, rapping at my monitor...
"'Tis some pop up," I muttered, "tapping at my monitor-
Only this, and nothing more."

But it was more, much much more.
Through my phosphorescent door
Came Dr Jim Kaler, the astronomore.
No night-brooding fowl here, but a treasury
Of understanding, appreciation and clarity,
Singing of night's starry serendipity.

If you haven't encountered him yet, do it at http://www.astro.uiuc.edu/~kaler/
Will there ever be a better astronomy website?
Quoth the Raven, "Nevermore!"

Improvements to CG5 Mount By Ron Dinkins

Simple fixes can improve telescope mount performance

The CG5 mount states that it can handle loads of up to 20 lbs.; however, this is somewhat optimistic. My 18 lb., 6-inch refractor pushes this mount to the limit. Vibration of the tube was very evident with the stock legs and spreader bar-vibrations from raps on the tube often lasted 7-8 seconds. Here are some of the things I've done to beef up the mount.

First, I cut an equilateral triangle from 1-inch plywood. Each side is about 12 inches long. The larger the triangle, the lower down from the equatorial head the brace will be. Next, I marked off a 3-inch equilateral triangle in each corner. I cut off each smaller triangle at a 45°angle leaving the slant edge toward the top. I now have a six-sided hexagon with 3 six-inch straight sides and 3 three inch slanted sides. (See the picture.) I then drilled a hole down the center to fit a ¼" diameter 20 threads/inch rod. The rod slips through the wood brace, up through the mount plate and then is screwed into the bottom of the equatorial head. A wing nut on the bottom is used to tighten the plate up against the legs. A nut on top is used as a safety catch to keep the rod from slipping out. Since the equatorial head is now braced directly to the legs, the mount is much more rigid. However, some torsional movement between the equatorial head and mount plate was still detected.

Bill Burgess at a Look Rock star party last year, suggested that the bolts holding the legs to the mount plate for the head could be the problem. The legs are attached to the mount plate with ¼ inch bolts that have some significant play in the holes drilled into the upper legs. I removed the ¼ inch bolts and redrilled the holes in the mount plate and each leg to accept a 3/8 inch bolt. Each hole was just slightly larger than the 3/8 inch bolt to eliminate as much play as possible. This tightened the mount very nicely-I can detect barely any torsional movement now.

Another improvement to the mount was height. My refractor tube was too close to the ground when viewing near zenith, and required me to crawl on the ground for some views. I removed the stock feet of the mount and replaced each with an18-inch long piece of cypress wood that is 2x2 inch square. The cypress was sanded smooth and round on one end, for about 6 inches, to fit up into the aluminum leg tube. Then the opposite end was cut at about 45°angle to match up with the ground. Two ¼-20 bolts were drilled and mounted through the legs and wood to hold each new foot on the aluminum legs. This brought the tube height up about 10 inches which makes viewing much more comfortable.

Finally, while I had the legs off the mount, I read on the Internet that the hollow aluminum legs may be a source of vibration due to ringing when the RA/DEC motors are running. Using the telescope visually, I have not notice any vibration; however, I went ahead and tamped polystyrene foam into each hollow leg. I cannot verify if the foam works because I still cannot detect if ringing is occurring.

The additional brace and larger bolts in the mount plate have really improved the rigidity of the mount. Taps on the tube now damp out in the 2-3 second range. If you have a CG5, or any tripod with hollow tube aluminum legs, you should give these improvements a try.

Product Review: BAADER AstroSolar Safety Film
By Ron Dinkins

I recently purchased some BAADER AstroSolar Safety Film™ to build a solar filter for my telescope. I was looking for an inexpensive filter to begin my Astronomy League Sunspotter Certificate Observing Program and found the film described on the Internet. I purchased it from Astro-Physics* at www.astro-physics.com. The price was only $30.00 for a 8 x 11 inch sheet of density 5 visual-use safety film. They also sell a density 3.8 photography only film, as well as larger 20 x 40-inch sheets of each density. The 8x11-inch size was more than enough to make a filter for my 6-inch scope, 50-mm finder scope, and my 60-mm quick look scope.

Fabricating the mount for the film is very easy and the instructions are included with the film and are also on the website. Basically, you wrap a strip of stiff cardboard about 1½-inches wide around the top outside of your scope. You want the ring to be snug but not too tight. Then glue the ends to form a ring. Next, wrap another strip of cardboard about 1 inch wide around the outside of the first ring. Glue this ring's ends together as well but make sure you can get the outer ring off after the glue has set. After everything has dried, leave the first ring on your scope tube and take off the second ring. Lay the solar film flat over the first ring and then slip the second ring back down over the film and first ring. Tug on the edges to get the film smooth but don't stretch it. A slightly loose but wrinkle-free fit is what you want. Trim off the excess film around the edges leaving about ¼ inch sticking out. Then take packing tape or such and tape around the second ring to secure the film. Presto, you're done!

The views through my 6-inch refractor with the film were very pleasing. The sun itself is a neutral light gray in color with a black sky. Sunspots are darker gray, nicely detailed, and sharp edged. Penumbril fibril lines inside the sunspot penumbra can be traced back to the umbra spots. Individual white facula lines are easily observable near the limb independent of any sunspot penumbra. Also, on days of good seeing, individual singular sunspots and granulation are visible across the face of the sun. Even with my 60-mm quick look scope, sunspots are easily seen with fibril lines and interconnecting facula evident. Overall, I would give this solar film an A+. It performs as promised with a price well below that of quality glass solar filters. The film itself is pretty tough to cut or tear and should last a long time if reasonable care is taken. Even small pinholes can be repaired with a black permanent marker without affecting performance. If you want a good solar filter for an inexpensive price, you will be happy with BAADER Astrosolar safety film.

*Astro-Physics, Inc., 11250 Forest Hills Rd., Machesney Park, IL 61115-8238, (815) 282-1513

The Wiz

Dear Wiz,

I paid a lot for my eyepieces, but they're all crummy. I only get to an occasional Star Party, so I'm not asking a lot, just a few good views. I've never even seen the Great Red Spot. I'm getting depressed. Are there really any good eyepieces? S. Deeply

Dear Sy,
Take heart! It isn't your eyepieces, it's the sky. If you could go to 365 consecutive Star Parties with clear skies, you might only find the GRS 20 times. That beautiful clear air is *turbulent,* and it blurs everyone's view, no matter how expensive their eyepieces.

Truly stable skies are rare, mostly associated with large bodies of water because the stable temperature of the water stabilizes the temperature of the air over it. That's why they put the Keck telescope in the middle of the Pacific ocean.

But even turbulent air will occasionally smooth out, maybe just for half a minute. That's why old heads pull a comfortable chair up to their telescope and drape a black cloth over their head and focuser as they observe an object. Ten minutes of patience, coupled with increased dark adaptation, might suddenly reveal your eyepiece to be the treasure you expected it to be.

Target Omega Centaur

See the largest globular cluster

On Sunday, March 30, just after 1:30 am EST, the largest globular cluster in earth's sky will transit our longitude. If the weather cooperates, we'll be able to see it from Look Rock. It will only be 7 1/2° above the southern horizon. Many people don't realize that it's visible from East Tennessee, but it is. It's Omega Centauri.

Many people can make out M13's fuzzy image with the naked eye. But M13 is magnitude 5.8, while Omega Centauri is a whopping magnitude 3.7. That's almost six times brighter. (Small wonder: 150 light years across, it's the largest globular cluster in the Milky Way, with over 10 million stars in its center.) On that night the moon will be two days before new, leaving the stage to Omega Centauri (also known as NGC 5139).

By chance, that will be a scheduled SMAS star party on Saturday night anyway. If you've never seen this wonder, by all means make your plans to observe it. Unless you travel long distances to observe with your telescope, this may be a unique opportunity.

Note that one week later the next SMAS star party is also scheduled at Look Rock, and a repeat performance is possible :15 minutes earlier. The five day old moon will have set by the time Omega Centauri transits.

Wake Up Your Brain!

Share your astronomical experience with the rest of SMAS and everyone on the Internet by writing an article for SCRAPS. Contact Mike Littleton at (865) 671-1022 or email littlen@ix.netcom.com.

February Meeting by Lee Erickson

The SMAS meeting was held February 7, 2003 at the Division Street Campus of Pellissippi State Technical Community College. Several members met earlier for dinner in the student lounge. There were 17 members in attendance and five guests. The quest speaker was John C. Mannone. He gave a presentation entitled "*Poetry of the Universe, Examples of Astronomy in Historical Literature"*. John has additional material that he was unable to present due to time constraint that may be part of a future lecture.

We received a request to conduct public observing in Oak Ridge on March 8 as part of ORNL's Nature Walks program, at Freel's Bend. Volunteers are sought; please contact Bob Arr at 681-3999.

Announcements:
Star parties are scheduled on February 22 and March 1 at Look Rock.

Club business.

Elections were held. The new club officers:

- President Bob Arr
- Vice President Robb Feldege
- Treasurer Erik Iverson
- Secretary Angela Quick

Bob Arr reports that liability insurance for club events is now in effect. The insurance is good for events within 100-miles of Knoxville

Steve Rothchild requested that the club address local light pollution by forming an action plan. A discussion followed. There was a suggestion that in addition to gathering information about light pollution and its effect on astronomy, the club could show light pollution's impact on energy consumption and nighttime driving visibility. This information could be used to inform local officials involved with formulating local building codes and how the codes could reduce light pollution.

Star Party by Tom Rimmell

Our next star party is on Saturday March 1st and another on Saturday March 29th at Look Rock. Notices are either sent by email or phone call in advance of the actual star party to confirm meeting and location of the event. Are you not getting these notices? If you haven't gotten a notice from me announcing a star party in the past couple of months, send me an email or phone call to ensure that you will be informed.

Email: trimmell@chartertn.net
Phone: (865) 983-7834

Be sure to check out the constellations Leo and Virgo this month. They will be in prime viewing position to observe their galaxies. Have you ever heard of the Virgo cluster? Many of these galaxies are observable in a small scope (less than 4") using a low power eyepiece. In a large scope, 14" and up, you will literally get lost trying to identify what galaxies you are looking at. Seeing multiple galaxies in a 40mm eyepiece is a real treat.

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Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Starparty
2 New Moon	3	4	5	6	7 UTK	8
9	10	11 1st Qt. Moon	12	13	14 SMAS Mtg.	15
16	17	18 Full Moon	19	20 Vernal Equinox	21 UTK	22
23	24 Last Qt. Moon	25	26	27	28	29 Omega Centarui
30	31					

Schedule of Events

- **3/1/03** Star party at Look Rock
- **3/7/03 and 3/21/03** Public observing from the roof of the Physics Building at UTK
- **3/14/03** SMAS Meeting at the Division Street Campus of PSCC
- **3/15/03** Venus rises at 5:01 AM; Mars rises at 2:45 AM; Jupiter sets at 4:51 AM; Saturn sets at 1:45 AM
- **3/29/03** Star party at Look Rock-Target Omega Centauri (See Article)